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AI-Powered Telecom Fraud Detection Market Forecasts to 2032 – Global Analysis By Component (Solutions/Platforms, and Services), Deployment Mode (On-Premises, and Cloud-Based), Fraud Type, Organization Size, Technology, and By Geography

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Abstracts

According to Stratistics MRC, the Global AI-Powered Telecom Fraud Detection Market is accounted for $3.6 billion in 2025 and is expected to reach $13.7 billion by 2032 growing at a CAGR of 21.0% during the forecast period. AI-powered telecom fraud detection provides systems that use AI and ML to identify and prevent fraudulent activities in telecommunications in real-time. It detects patterns indicative of fraud like SIM boxing, subscription fraud, or international revenue share fraud (IRSF). By analyzing vast call data records, these systems can flag anomalies and block threats proactively. As telecom fraud becomes more sophisticated, carriers adopt these solutions to protect revenue and secure customer accounts, minimizing financial losses.

According to the Federal Communications Commission (FCC), AI-powered telecom fraud detection systems decreased SIM-swapping fraud incidents by 28% between 2022 and 2024.?

Market Dynamics:

Driver:

Rising sophistication of telecom fraud schemes

The increasing complexity of telecom fraud, including SIM swap attacks, phishing, and subscription fraud, has intensified the need for AI-powered detection solutions.

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Traditional rule-based systems struggle to detect evolving patterns, prompting telecom operators to adopt advanced AI and machine learning models that analyze large volumes of call, transaction, and network data in real time. Furthermore, regulatory pressure to safeguard customer data and prevent financial losses drives investments, making sophisticated AI detection a critical component for operational security and service reliability across the telecom industry.

Restraint:

High implementation costs for AI systems

Deploying AI-based fraud detection requires substantial investment in infrastructure, data management, and skilled personnel. Telecom operators, especially in emerging markets, face budgetary constraints that limit the scale and speed of adoption. High upfront costs, ongoing maintenance, and integration with legacy systems can deter smaller providers from implementing advanced solutions. Additionally, the need for continuous model training and updates adds recurring expenses, posing financial challenges. These cost barriers can slow market penetration despite the growing necessity for robust fraud prevention solutions globally.

Opportunity:

Expansion into IoT security and mobile banking protection

The proliferation of IoT devices and mobile banking services presents significant opportunities for AI-powered telecom fraud detection providers. As connected devices and mobile transactions increase, the risk of fraud expands, creating demand for advanced real-time monitoring and predictive analytics. Companies can develop specialized solutions to secure IoT networks, smart devices, and mobile financial services, offering additional revenue streams. Moreover, partnerships with banks, fintechs, and IoT service providers allow vendors to diversify their offerings, enhance adoption, and establish long-term strategic footholds in rapidly growing digital ecosystems.

Threat:

Evolving fraud tactics bypassing existing detection models

Fraudsters continuously develop new strategies to circumvent existing AI detection

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systems, including sophisticated social engineering, deepfake calls, and anonymized network attacks. This rapid evolution challenges the effectiveness of deployed models, requiring continuous retraining, algorithm refinement, and integration of additional threat intelligence. Moreover, delays in updating detection mechanisms can lead to significant financial losses and reputational damage for telecom operators.

Covid-19 Impact:

The pandemic accelerated digital adoption, increasing reliance on telecom and mobile services, which inadvertently raised exposure to fraud. Remote work, online transactions, and heightened mobile banking usage created new attack vectors for fraudsters. Consequently, telecom operators accelerated deployment of AI-powered fraud detection solutions to protect customers and safeguard revenue. Additionally, the surge in cyber threats highlighted the critical importance of real-time monitoring and predictive analytics, reinforcing demand for advanced AI models capable of responding to evolving telecom fraud patterns under rapidly changing circumstances.

The cloud-based segment is expected to be the largest during the forecast period

The cloud-based segment is expected to account for the largest market share during the forecast period is driven by their cost-effectiveness, ease of deployment, and ability to scale with growing telecom networks. Operators benefit from continuous updates, enhanced analytics, and reduced maintenance overhead compared to on-premise systems. Furthermore, cloud infrastructure supports high-volume data processing essential for detecting sophisticated fraud patterns. The combination of operational efficiency, security, and adaptability ensures that cloud-based solutions capture the largest market share while meeting evolving telecom industry demands globally.

The services segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the services segment is predicted to witness the highest growth rate is fueled by increasing demand for end-to-end solutions encompassing AI model development, system integration, and ongoing support. Operators seek expertise to implement robust fraud detection frameworks, ensure regulatory compliance, and adapt to rapidly evolving fraud tactics. Moreover, service providers offer analytics, monitoring, and optimization tools that enhance performance without requiring heavy in-house technical resources. This trend positions services as the segment with the highest CAGR, reflecting strong market expansion potential in both mature and emerging telecom regions.

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Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share due to advanced telecom infrastructure, high adoption of AI technologies, and significant investment in fraud prevention. Regional operators face stringent regulatory frameworks and sophisticated fraud schemes, driving the deployment of AI-powered solutions. Additionally, the presence of major technology vendors and continuous innovation in AI and analytics contribute to a mature and competitive market. These factors collectively ensure North America maintains the largest market share, with strong demand from both enterprise telecom operators and mobile service providers.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. Rapid telecom network expansion, growing smartphone penetration, and increasing mobile banking adoption fuel the demand for AI-powered fraud detection in Asia Pacific. Emerging economies face heightened risks from evolving fraud tactics, prompting operators to invest in scalable, cloud-based AI solutions. Additionally, government initiatives supporting digital transformation, coupled with increasing IoT deployments, create a fertile environment for market growth. These factors collectively drive Asia Pacific to achieve the highest CAGR, reflecting robust adoption and market potential across the region.

Key players in the market

Some of the key players in AI-Powered Telecom Fraud Detection Market include Subex Limited, Socure Inc., Neural Technologies Limited, Vonage Holdings Corp., HCLTech, SAS Institute Inc., Inform Software, Sift Science, Inc., Quantexa Limited, Feedzai Inc., Seon Technologies, Tanla Platforms Limited, Airtel Limited, Vodafone Idea Limited, and Mastercard Incorporated.

Key Developments:

In October 2025, HCLTech and Zscaler expanded their partnership to provide AI-powered security and network solutions. The integration of Zscaler's Zero Trust Exchange™ platform with HCLTech's Cybersecurity Fusion Center aims to enhance enterprise resilience and achieve business outcomes with a cloud-first, scalable security

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solution.

In September 2025, INFORM showcased its RiskShield software at Sibos 2025, combining machine learning with knowledge-based approaches to detect suspicious patterns in real-time and stop fraud. The platform offers an interconnected approach to fraud prevention, reflecting the collaborative spirit of Sibos.

In June 2025, Subex launched FraudZap™, a lightweight, AI-powered fraud detection platform designed to help telecom operator's combat fast-evolving fraud with unmatched speed and agility. The platform's first out-of-the-box use case targets the growing threat of handset fraud, one of the most pervasive challenges for telcos currently.

In June 2025, Subex integrated Embedded Generative AI into its HyperSense Revenue Assurance & Fraud Management platform, marking a foundational shift in how telecom systems operate: moving from static configuration to dynamic, AI-driven reasoning.

Components Covered:

- Solutions/Platforms
- Services

Deployment Modes Covered:

- On-Premises
- Cloud-Based

Fraud Types Covered:

- Subscription Fraud
- Revenue Share Fraud (IRSF)
- Wangiri Fraud (One-Ring Scam)

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PBX Hacking

SIM Box Fraud (Bypass Fraud)

Roaming Fraud

New Account Fraud

Other Fraud Types

Organization Sizes Covered:

Large Enterprises

Small and Medium-sized Enterprises

Technologies Covered:

Machine Learning (ML) & Deep Learning (DL)

Natural Language Processing (NLP)

Big Data Analytics

Behavioral Analytics

Other AI Subsets

Regions Covered:

North America

US

Canada

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- Mexico

Europe

- Germany
- UK
- Italy
- France
- Spain
- Rest of Europe

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile

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Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

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Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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